

# **Missouri State Implementation Plan Revision**

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## **Interstate Transport Provisions for the 2010 Sulfur Dioxide National Ambient Air Quality Standard**

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**Prepared for the  
Missouri Air Conservation Commission**



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**Missouri Department of Natural Resources  
Division of Environmental Quality  
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## Executive Summary

The purpose of this State Implementation Plan (SIP or plan) revision is to address Missouri's requirements under Clean Air Act (CAA) Section 110(a)(2)(D)(i)(I) for the 2010 1-hour Sulfur Dioxide (SO<sub>2</sub>) National Ambient Air Quality Standard (NAAQS or standard). Plans addressing the CAA Section 110(a) requirements are called infrastructure plans,<sup>1</sup> and part of these requirements is to ensure the plan prohibits emissions that will significantly contribute to nonattainment or interfere with maintenance in any downwind state for any NAAQS. These interstate air pollution transport requirements ensure that emissions in one state are not causing or contributing to air pollution concerns in another state.

CAA Section 110(a) requires states to submit infrastructure plans and interstate transport plans to the U.S. Environmental Protection Agency (EPA) within three years after EPA promulgates a new or revised standard. The Missouri Department of Natural Resources' Air Pollution Control Program (air program) submitted Missouri's infrastructure plan for the 2010 SO<sub>2</sub> standard in July 2013. The plan contained all elements except the interstate transport provisions. At that time, the deadline for interstate transport plans for SO<sub>2</sub> was suspended based on a 2012 D.C. Circuit Court decision and EPA guidance advising states not to submit interstate transport plans until EPA quantifies state obligations.<sup>2</sup> However, in 2014, a subsequent U.S. Supreme Court ruling and corresponding EPA actions withdrew that interpretation.<sup>3</sup> In March 2018, EPA approved Missouri's Infrastructure plan for the 2010 SO<sub>2</sub> standard for all elements except the interstate transport requirements of CAA Section 110(a)(2)(D)(i)(I).<sup>4</sup> Missouri is still required to submit a plan addressing these requirements.

This plan addresses the interstate transport provisions for the 2010 SO<sub>2</sub> standard by evaluating emissions, distances between facilities, monitoring and modeling data, meteorological data, and enforceable requirements for SO<sub>2</sub>-emitting facilities to determine the impact in bordering states. This evaluation demonstrates that Missouri's plan adequately controls emissions in the state, ensuring that emissions from Missouri do not significantly contribute to nonattainment or interfere with the maintenance of the 2010 SO<sub>2</sub> standard in any downwind state.

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<sup>1</sup> Infrastructure State Implementation Plans (SIPs) as required under the CAA Section 110(a)(1) provide for the implementation, maintenance, and enforcement of the NAAQS whenever a new NAAQS is promulgated by EPA. <https://www.epa.gov/air-quality-implementation-plans/infrastructure-state-implementation-plan-sip-requirements-and>.

<sup>2</sup> See *EME Homer City Generation v. EPA*, 696 F.3d 7, 31 (D.C. Cir. 2012).

<sup>3</sup> See *EPA v. EME Homer City Generation, L. P.*, 572 U. S. \_\_\_\_ (2014).

<sup>4</sup> See 83 FR 12496, published March 22, 2018.

## 1. Background

On June 22, 2010, EPA promulgated the 2010 SO<sub>2</sub> standard.<sup>5</sup> EPA established a new 1-hour standard at 75 parts per billion (ppb) based on a 3-year average of the annual 99<sup>th</sup> percentile of the 1-hour daily maximum concentrations. EPA also revoked both the 24-hour and the annual primary SO<sub>2</sub> standards that were previously in effect. When EPA promulgates a standard, all states must update their plans within three years to provide for the implementation, maintenance, and enforcement of the new standard. These plans, required by CAA Section 110(a), are called infrastructure plans. The purpose of infrastructure plans is to require states to demonstrate that they have the ability and authority to implement each of the CAA Section 110(a) requirements for the new or revised standard.

When EPA promulgated the 2010 SO<sub>2</sub> standard, the agency dramatically changed the expected approach for SO<sub>2</sub> infrastructure plans compared to historical practice. EPA used a new hybrid monitoring-modeling approach and required all areas, regardless of designation, to submit plans to show that air quality attains and maintains the standard. Specifically, EPA stated in the preamble of the final rule establishing the 2010 SO<sub>2</sub> standard –

*This change in anticipated approach has particular relevance for how States would meet their statutory obligations under CAA section 110(a) to implement, maintain and enforce the new SO<sub>2</sub> NAAQS. In short, under such an approach, all areas, whether designated as attainment, nonattainment, or unclassifiable, would need to submit SIPs under CAA section 110(a) that show that they are attaining and maintaining the 1-hour SO<sub>2</sub> NAAQS as expeditiously as practicable through permanent and enforceable measures. In other words, the duty to show maintenance of the SO<sub>2</sub> NAAQS would not be limited to areas that are initially designated as nonattainment, but instead would apply regardless of designation. As has been expected historically, areas initially designated attainment for SO<sub>2</sub> are expected to submit to EPA the infrastructure elements of the 110(a) SIP, including the PSD program. Historically, EPA has determined this to be sufficient to demonstrate maintenance absent other available information to suggest the area would have difficulty maintaining the NAAQS.<sup>6</sup>*

This new approach frustrated state planning efforts. It removed the significance of the designations process.<sup>7</sup> Historically, states had to implement emission controls and perform modeling only for areas designated as nonattainment. Now, states had to not only implement emission controls and perform modeling for all areas, even those designated as attainment or unclassifiable, but also complete these tasks on a shorter deadline. States that could not meet the deadline would trigger the requirement for EPA to issue federal implementation plans. Because of the intense work required and the short deadline, most states would not have been able to satisfy these requirements.

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<sup>5</sup> See 75 FR 35520.

<sup>6</sup> Id. at p. 35573.

<sup>7</sup> After EPA sets a new standard for a criteria air pollutant, the CAA requires EPA to determine if areas of the country meet the new standard. EPA will designate an area based on whether or not it is meeting the standard. <https://www.epa.gov/criteria-air-pollutants/process-determine-whether-areas-meet-naaqs-designations-process>.

In response to these state struggles, EPA altered course in 2012. In an April 2012 letter from EPA to the Missouri Department of Natural Resources,<sup>8</sup> EPA stated –

*We recommend for now that states focus their 2013 SIP submittals on the traditional infrastructure elements of Clean Air Act sections 110(a)(1) and (2), rather than on modeling demonstrations showing future attainment of the standard by a fixed date for unclassifiable areas.*

The air program followed this recommendation and a 2012 D.C. Circuit Court opinion<sup>9</sup> in developing its infrastructure plan. The air program submitted its Infrastructure plan to EPA in July 2013.<sup>10</sup> The plan addressed all required elements of the CAA Section 110(a) except for the interstate transport provisions in Section 110(a)(2)(D)(i)(I).

In August 2013, EPA published the initial air quality designations for the 2010 SO<sub>2</sub> standard for 29 areas in the Federal Register.<sup>11</sup> EPA deferred designations for other areas to future actions. The EPA designations process would eventually require four rounds, spanning from 2013 through 2020. Round 1 of designations included two nonattainment areas in Missouri, located in portions of Jackson and Jefferson Counties.

In April 2014, in response to EPA's appeal of the 2012 D.C. Circuit's decision, the U.S. Supreme Court issued a decision reversing the 2012 D.C. Circuit's decision. The U.S. Supreme Court's decision returned to EPA the responsibility to establish a deadline for states to submit plans addressing interstate transport requirements.<sup>12</sup>

In March 2015, EPA signed a consent decree<sup>13</sup> with the Sierra Club and the Natural Resources Defense Council to resolve court claims filed in 2013. The plaintiffs claimed that EPA did not promulgate designations under the 2010 SO<sub>2</sub> standard within the timeline required by the CAA. The consent decree specified a schedule for EPA to complete the remaining designations in three additional rounds with three specific deadlines.

Round 2 designations,<sup>14</sup> with a deadline of July 2, 2016, considered any areas that contained either a violating monitor or areas that contained a facility that emitted, in 2012, either (i) more than 16,000 tons of SO<sub>2</sub> or (ii) more than 2,600 tons of SO<sub>2</sub> and had an average emission rate of

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<sup>8</sup> Letter dated April 12, 2012, from Gina McCarthy, U.S. EPA Assistant Administrator, to Sara Parker Pauley, Director, Missouri Department of Natural Resources, Subject: Designating areas, and developing SIPs for the 2010 SO<sub>2</sub> NAAQS.

<sup>9</sup> EME Homer City Generation v. EPA, 2012, op. cit.

<sup>10</sup> <https://dnr.mo.gov/document-search/section-110-infrastructure-requirements-2010-sulfur-dioxide-national-ambient-air-quality-standard>.

<sup>11</sup> U.S. Environmental Protection Agency, Air Quality Designations for the 2010 Sulfur Dioxide (SO<sub>2</sub>) Primary National Ambient Air Quality Standard, Federal Register, (August 5, 2013), op. cit. For more information visit: <https://www.federalregister.gov/citation/78-FR-47191>.

<sup>12</sup> EPA v. EME Homer City Generation, 2014, op. cit.

<sup>13</sup> See consent decree, Sierra Club and Natural Resources Defense Council v. EPA, Case No. 3:13-cv-3953-SI (N.D. Cal. 2015). [https://www.govinfo.gov/content/pkg/USCOURTS-cand-3\\_13-cv-03953/pdf/USCOURTS-cand-3\\_13-cv-03953-10.pdf](https://www.govinfo.gov/content/pkg/USCOURTS-cand-3_13-cv-03953/pdf/USCOURTS-cand-3_13-cv-03953-10.pdf).

<sup>14</sup> EPA published final designations under Round 2 on July 12, 2016 (81 FR 45039), and December 13, 2016 (81 FR 89870).

at least 0.45 pounds SO<sub>2</sub> per million British thermal units. Three facilities in Missouri met at least one of these criteria: the Ameren Missouri Labadie Energy Center, the Sikeston Power Station, and the Kansas City Power and Light Greater Missouri Operations Company Sibley Generating Station. The air program modeled the air quality surrounding these three facilities and submitted boundary designation recommendations to EPA in September 2015.<sup>15</sup> The areas evaluated in these recommendations included portions of both Franklin County and St. Charles County for the Ameren Missouri Labadie Energy Center, Scott County for the Sikeston Power Station, and a portion of Jackson County for the Kansas City Power and Light Greater Missouri Operations Company Sibley Generating Station. EPA finalized Round 2 designations in July 2016.<sup>16</sup> In this action, EPA designated the portions of Franklin and St. Charles Counties and the portion of Jackson County as unclassifiable. EPA designated Scott County as attainment/unclassifiable. EPA deferred designations for all remaining undesignated areas to future actions.

Round 3<sup>17</sup> had a deadline of December 31, 2017, and Round 4<sup>18</sup> had a deadline of December 31, 2020. The consent decree stated that EPA must designate areas in these two final rounds in accordance with EPA's SO<sub>2</sub> Data Requirements Rule for the 2010 SO<sub>2</sub> standard.

### *1.1 EPA's SO<sub>2</sub> Data Requirements Rule*

EPA promulgated the SO<sub>2</sub> Data Requirements Rule in August 2015.<sup>19</sup> The rule described the process of completing boundary designations for the 2010 SO<sub>2</sub> standard. The rule required each air agency to submit a list of affected facilities to EPA by January 15, 2016. The list needed to identify all facilities within the state that emitted more than 2,000 tons of SO<sub>2</sub> during the most recent year for which data was available and any other additional facilities that may need air quality analysis. The rule required air quality analysis of all areas associated with each listed facility and provided two options for the analysis: monitoring or modeling. The rule also provided a third option, where facilities could accept a federally enforceable limit restricting emissions to less than 2,000 tons of SO<sub>2</sub> per year, removing the requirement to analyze the air quality around the facility. Additionally, the rule required the state to submit annual reports for the listed facilities in areas designated attainment/unclassifiable, where the designation was based on modeling of actual emissions. The reports must evaluate emissions from these facilities to ensure emissions have not increased to a level that may cause a violation of the standard. The air program has submitted these annual reports since 2017.<sup>20</sup>

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<sup>15</sup> <https://dnr.mo.gov/document-search/2010-1-hour-sulfur-dioxide-standard-area-boundary-recommendations-july-2016-designations>.

<sup>16</sup> U.S. Environmental Protection Agency, Air Quality Designations for the 2010 Sulfur Dioxide (SO<sub>2</sub>) Primary National Ambient Air Quality Standard—Round 2, (July 12, 2016), op. cit. For more information visit: <https://www.federalregister.gov/citation/81-FR-45039>.

<sup>17</sup> EPA published final designations under Round 3 on January 9, 2018 (83 FR 1098).

<sup>18</sup> See 86 FR 16055, published March 26, 2021.

<sup>19</sup> See 80 FR 51052, published August 21, 2015.

<sup>20</sup> The SO<sub>2</sub> Data Requirements Rule report fulfills EPA requirements found in 40 CFR Part 51 Subpart BB and is submitted annually. Under 40 CFR 51.1205(b), reports must be submitted for any area where modeling of actual SO<sub>2</sub> emissions were the basis for designating the area as attainment for the 2010 SO<sub>2</sub> standard.

In January 2016, the air program submitted the list of affected facilities using 2014 emission data.<sup>21</sup> The list contained 16 facilities. After the air program submitted the list to EPA, the next step was determining each facility's compliance option under the rule: modeling, monitoring, or accepting a federally enforceable emissions limit of less than 2,000 tons of SO<sub>2</sub> per year. In June 2016, the air program provided this information to EPA.<sup>22</sup> Five facilities accepted the emissions limit, seven chose modeling, and four chose monitoring. For the seven facilities that chose modeling, the air program performed modeling and submitted recommendations based on the modeling results to EPA in December 2016.<sup>23</sup> For the four facilities that chose monitoring, the air program approved the SO<sub>2</sub> monitoring networks in 2016,<sup>24</sup> and the monitors were operational by January 2017.

EPA issued the Round 3 designations in January 2018. These designations covered all areas not designated in Rounds 1 or 2 except those undergoing monitoring. In Round 3, EPA designated six areas in three states and two territories as nonattainment, 23 areas in ten states as unclassifiable, and all remaining areas as attainment/unclassifiable, except where additional monitoring was underway. In Missouri, EPA designated the rest of the state as attainment/unclassifiable, except Iron County and New Madrid County, since those were two counties with facilities that elected to install new monitors.<sup>25</sup>

EPA issued Round 4 designations in March 2021. Round 4 designations included all remaining areas not designated in previous rounds. In Missouri, EPA designated Iron County as attainment/unclassifiable, a portion of New Madrid County as nonattainment, and the remainder of New Madrid County as attainment/unclassifiable.<sup>26</sup>

## *1.2 Missouri Nonattainment Areas for the 2010 Sulfur Dioxide Standard*

According to CAA Section 191, states must submit nonattainment area plans within 18 months following the effective date of a nonattainment designation for SO<sub>2</sub>. According to CAA Section 192, the attainment deadline for SO<sub>2</sub> nonattainment areas is as expeditiously as practicable but no later than five years from the effective date of the designation. Nonattainment area plans describe how the air quality will return to attainment with the standard. EPA's Round 1 designations became effective October 4, 2013, setting a deadline of April 4, 2015, for the air program to submit nonattainment area plans for the SO<sub>2</sub> nonattainment areas in both Jefferson and Jackson Counties. The attainment deadline for these areas was October 4, 2018. EPA's Round 4 designations became effective April 31, 2021, setting a deadline of October 31, 2022,

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<sup>21</sup> <https://dnr.mo.gov/document-search/list-sources-subject-2010-1-hour-sulfur-dioxide-data-requirements-rule>.

<sup>22</sup> <https://dnr.mo.gov/document-search/evaluation-specifics-sources-subject-2010-1-hour-sulfur-dioxide-data-requirements-rule>

<sup>23</sup> <https://dnr.mo.gov/document-search/2010-1-hour-sulfur-dioxide-standard-area-boundary-recommendations-december-2017-designations>. See Appendices A, B, C, F, and G.

<sup>24</sup> <https://dnr.mo.gov/document-search/2016-monitoring-network-plan>.

<sup>25</sup> U.S. Environmental Protection Agency, Air Quality Designations for the 2010 Sulfur Dioxide (SO<sub>2</sub>) Primary National Ambient Air Quality Standard—Round 3, Federal Register, (January 9, 2018), op. cit. For more information visit: <https://www.federalregister.gov/documents/2018/01/09/2017-28423/air-quality-designations-for-the-2010-sulfur-dioxide-so2-primary-national-ambient-air-quality>.

<sup>26</sup> U.S. Environmental Protection Agency, Air Quality Designations for the 2010 Primary Sulfur Dioxide (SO<sub>2</sub>) National Ambient Air Quality Standard—Round 4, Federal Register, (March 26, 2021), op. cit. For more information visit: <https://www.federalregister.gov/citation/86-FR-16055>.

for the air program to submit the nonattainment area plan for the SO<sub>2</sub> nonattainment area in New Madrid County. This section details the air program's actions on these nonattainment area plans. In addition to nonattainment area plans, states must submit the CAA Section 110 infrastructure plans within three years following the EPA promulgation of any new or revised NAAQS. Missouri's infrastructure plan for the 2010 SO<sub>2</sub> standard is addressed in section 1.3.

### **1.2.1 Jefferson County SO<sub>2</sub> Nonattainment Area**

In May 2015, the air program submitted to EPA a nonattainment area plan for the Jefferson County SO<sub>2</sub> nonattainment area. EPA deemed the plan complete by operation of law in November 2015. However, in February 2016,<sup>27</sup> the air program submitted a Clean Data Determination<sup>28</sup> request to EPA for the Jefferson County SO<sub>2</sub> nonattainment area since the violating monitor had come back into compliance with the 2010 SO<sub>2</sub> standard based on the 3-year period from 2013 to 2015. In 2017, EPA published a Clean Data Determination for the partial Jefferson County nonattainment area, suspending certain air program planning obligations.<sup>29</sup>

In December 2017, the air program submitted to EPA a redesignation request and maintenance plan<sup>30</sup> for the Jefferson County SO<sub>2</sub> nonattainment area.<sup>31</sup> Subsequently, the air program provided supplemental information to EPA in May 2018, February 2019, and April 2021 for this plan.

In March 2018, the air program withdrew from EPA the Jefferson County nonattainment area plan components that were suspended due to the Clean Data Determination. This action removed EPA's obligation to act on these suspended planning elements before acting on the redesignation request. In January 2022, EPA approved the maintenance plan and redesignation request for the Jefferson County SO<sub>2</sub> nonattainment area.<sup>32</sup> The redesignation of the area back to attainment became effective in February 2022. After this date, the former nonattainment area is now called the Jefferson County SO<sub>2</sub> maintenance area.

### **1.2.2 Jackson County SO<sub>2</sub> Nonattainment Area**

In October 2015, the air program submitted a nonattainment area plan for the Jackson County SO<sub>2</sub> nonattainment area to the EPA. In May 2018, the air program submitted a Clean Data

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<sup>27</sup> <https://dnr.mo.gov/document-search/modnr-determination-request-jefferson-county-2010-1-hour-sulfur-dioxide-national-ambient-air-quality-standard-attainment>.

<sup>28</sup> Under EPA's Clean Data Policy, a Clean Data Determination can be issued when a nonattainment area is attaining the NAAQS based on the most recent data. A Clean Data Determination is not a redesignation to attainment. If a Clean Data Determination is finalized by EPA, then certain State Implementation Plan requirements for an area are suspended. <https://www.epa.gov/ground-level-ozone-pollution/redesignation-and-clean-data-policy-cdp>.

<sup>29</sup> See 82 FR 42945, published September 13, 2017.

<sup>30</sup> Maintenance areas are those areas with clearly defined boundaries that previously were nonattainment areas for a given NAAQS.

<sup>31</sup> <https://dnr.mo.gov/document-search/redesignation-request-maintenance-plan-2010-sulfur-dioxide-standard-jefferson-county-nonattainment-area>.

<sup>32</sup> See 87 FR 4508, published January 28, 2022.

Determination request<sup>33</sup> to EPA for the Jackson County SO<sub>2</sub> nonattainment area since the violating monitor had come back into compliance with the 2010 SO<sub>2</sub> standard based on the 3-year period from 2015 to 2017. In July 2020, EPA published a Clean Data Determination for the partial Jackson County nonattainment area, suspending certain air program planning obligations.<sup>34</sup>

In February 2021, the air program submitted to EPA a redesignation request and maintenance plan for the Jackson County SO<sub>2</sub> nonattainment area.<sup>35</sup> The air program submitted supplemental material for this plan to EPA in September 2021.<sup>36</sup>

In June 2018, the air program withdrew from EPA the Jackson County nonattainment area plan components that were suspended due to the Clean Data Determination. This action removed EPA's obligation to act on these suspended planning elements before acting on the redesignation request. In January 2022, EPA approved the maintenance plan and redesignation request for the Jackson County SO<sub>2</sub> nonattainment area.<sup>37</sup> The redesignation of the area back to attainment became effective in March 2022. After this date, the former nonattainment area is now called the Jackson County SO<sub>2</sub> maintenance area.

### **1.2.3 New Madrid County SO<sub>2</sub> Nonattainment Area**

On May 3, 2023, the air program submitted a nonattainment area plan for the New Madrid County SO<sub>2</sub> nonattainment area to the EPA.<sup>38</sup> The plan includes new enforceable Consent Agreements for the two major emitting facilities located in the nonattainment area, Magnitude 7 Metals LLC<sup>39</sup> primary aluminum smelter and the AECI New Madrid Power Plant.<sup>40</sup> This plan demonstrates attainment for the New Madrid County SO<sub>2</sub> partial nonattainment area using the newly established enforceable emission rates in an atmospheric dispersion modeling analysis. The plan is currently undergoing EPA review.

## *1.3 Missouri Infrastructure Plan for the 2010 Sulfur Dioxide Standard*

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<sup>33</sup> <https://dnr.mo.gov/document-search/modnr-determination-request-jackson-county-2010-1-hour-sulfur-dioxide-national-ambient-air-quality-standard-attainment>.

<sup>34</sup> See 85 FR 41193, published July 9, 2020.

<sup>35</sup> <https://dnr.mo.gov/document-search/maintenance-plan-jackson-county-nonattainment-area-2010-sulfur-dioxide-standard>.

<sup>36</sup> <https://dnr.mo.gov/document-search/maintenance-plan-supplement-jackson-county-nonattainment-area-2010-sulfur-dioxide-standard>.

<sup>37</sup> U.S. Environmental Protection Agency, Air Plan Approval; Missouri Redesignation Request and Associated Maintenance Plan for the Jefferson County 2010 SO<sub>2</sub> 1-Hour NAAQS Nonattainment Area, Federal Register, (January 28, 2022), op. cit. For more information visit: <https://www.federalregister.gov/citation/87-FR-4812>.

<sup>38</sup> <https://dnr.mo.gov/document-search/modnr-submittal-new-madrid-county-nonattainment-area-plan-2010-sulfur-dioxide-standard-may-3-2023>.

<sup>39</sup> The Consent Agreement for Magnitude 7 may be found in Appendix E of the New Madrid County Nonattainment Area Plan for the 2010 Sulfur Dioxide Standard, <https://dnr.mo.gov/document/new-madrid-sulfur-dioxide-nonattainment-plan-appendices-through-g>.

<sup>40</sup> Id. The Consent Agreement for the New Madrid Power Plant may be found in Appendix F of the New Madrid County Nonattainment Area Plan for the 2010 Sulfur Dioxide Standard.

When EPA published the 2010 SO<sub>2</sub> standard in June 2010, this started a 3-year deadline for the air program to submit an infrastructure plan. This plan describes the authorities, resources, and programs the State of Missouri and the air program have in place to implement, maintain, and enforce the 2010 SO<sub>2</sub> standard. Infrastructure plans are typically administrative and do not contain new emission control measures. The requirements for infrastructure plans are detailed in the CAA Section 110(a). All states must submit infrastructure plans, regardless of attainment status.

In July 2013, the air program submitted an infrastructure plan to the EPA to address the CAA Section 110 requirements for the 2010 SO<sub>2</sub> standard.<sup>41</sup> The plan satisfied all requirements except the interstate transport requirements in the CAA Section 110(a)(2)(D)(i)(I). In March 2018,<sup>42</sup> EPA approved the following elements of the plan: CAA Section 110(a)(2)(A), (B), (C), (D)(i)(II)-prong 3 (the interstate transport requirements regarding prevention of significant deterioration), (D)(ii), (E) through (H), and (J) through (M). In this action, EPA did not address the provisions of CAA Section 110(a)(2)(D)(i)(I)-prongs 1 and 2 (the interstate transport requirements regarding downwind state nonattainment and maintenance issues) or CAA Section 110(a)(2)(D)(i)(II)-prong 4 (the interstate transport requirements regarding visibility). However, in September 2018,<sup>43</sup> the EPA approved the CAA Section 110(2)(2)(D)(i)(II)-prong 4 element relating to visibility. The next section contains an explanation of EPA's four-prong interpretation of the interstate transport provisions in CAA Section 110(a)(2)(D)(i).

## **2. Clean Air Act Section 110(a)(2)(D)(i) Interstate Transport Provisions and EPA's Four-Prong Interpretation**

The CAA Section 110(a)(2)(D)(i) contains the interstate transport requirements for plans concerning any standard that EPA promulgates. This CAA section is divided into two sections, (D)(i)(I) and (D)(i)(II), and those sections each include two distinct requirements, making a total of four requirements concerning interstate transport, which EPA often refers to as prongs 1 through 4. The first two prongs, which appear in Section 110(a)(2)(D)(i)(I), require plans to contain adequate provisions that prohibit any facility or other type of emissions activity in one state from significantly contributing to nonattainment of the standard in another state (prong 1) and from interfering with maintenance of the standard in another state (prong 2). The third and fourth prongs, which appear in Section 110(a)(2)(D)(i)(II), require plans to contain adequate provisions that prohibit emissions activity in one state from interfering with measures required to prevent significant deterioration of air quality in another state (prong 3) or from interfering with measures to protect visibility in another state (prong 4). As described in Section 1.3, EPA has already approved Missouri's plans concerning prongs 3 and 4 for the 2010 SO<sub>2</sub> standard. The plan described in this document addresses prongs 1 and 2 from CAA Section 110(a)(2)(D)(i)(I).

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<sup>41</sup> Missouri Department of Natural Resources, Section 110 Infrastructure Requirements for the 2010 Sulfur Dioxide (SO<sub>2</sub>) National Ambient Air Quality Standard (NAAQS), State Implementation Plan revision, (July 1, 2013), op. cit. For more information visit: <https://dnr.mo.gov/document-search/section-110-infrastructure-requirements-2010-sulfur-dioxide-national-ambient-air-quality-standard>.

<sup>42</sup> U.S. Environmental Protection Agency, Approval of Implementation Plans; State of Missouri; Elements of the Infrastructure State Implementation Plan Requirements for the 2008 Ozone, 2010 Nitrogen Dioxide, 2010 Sulfur Dioxide, and 2012 Fine Particulate Matter National Ambient Air Quality Standards (NAAQS), Federal Register, (March 22, 2018), op. cit. For more information visit: <https://www.federalregister.gov/citation/83-FR-12496>.

<sup>43</sup> See 83 FR 48242, published September 24, 2018.

### **3. Missouri's Interstate Transport Plan for the 2010 Sulfur Dioxide Standard**

#### *3.1 Sulfur Dioxide Transport*

Sulfur dioxide is unlike ozone and fine particulate matter, where emissions can travel hundreds of miles from an emission source and commonly contribute to widespread nonattainment over a large area. Because of the way SO<sub>2</sub> behaves in the atmosphere, it creates local pollutant impacts that are very near the emission source. Sulfur dioxide concentrations in the atmosphere decrease through a process called oxidation. Facilities that emit SO<sub>2</sub> also emit other pollutants; the closer to a facility, the greater the concentrations of these other pollutants. The high concentrations of these other pollutants reduce the amount of oxidizing agents available for the oxidation process. This results in increased SO<sub>2</sub> concentrations near the facility. As distance from the facility increases, the concentration of these other pollutants decreases. This, in turn, increases the amount of oxidizing agents available for the oxidation process, resulting in decreased SO<sub>2</sub> concentrations.

#### *3.2 Prong 1 Analysis*

State plans are required to contain provisions that prohibit any facility or other type of emissions activity in one state from significantly contributing to nonattainment of the standard in another state (prong 1). In this plan, the air program performed a weight of evidence analysis to demonstrate compliance with prong 1 requirements. The air program reviewed ambient air quality monitors to determine if Missouri or border-states had any areas with elevated SO<sub>2</sub> design values. The air program examined SO<sub>2</sub> modeling performed for in-state and out-state areas to show that modeled SO<sub>2</sub> values are less than the 2010 SO<sub>2</sub> standard. The air program analyzed meteorological data by using wind roses to determine the likelihood of transport of SO<sub>2</sub> emissions into border-states or to identify areas that could contribute to elevated concentrations of SO<sub>2</sub>. The air program considered SO<sub>2</sub> emission trends by reviewing facilities recent SO<sub>2</sub> emissions. Finally, the air program reviewed distances between facilities to determine the likelihood of areas with elevated SO<sub>2</sub> concentrations.

Monitoring data is collected from ambient air quality monitoring sites located in Missouri and bordering states. The air program analyzed monitoring data to determine if there were any monitoring sites with elevated SO<sub>2</sub> concentration levels. As part of the evaluation, the air program also included SO<sub>2</sub> monitors used for the SO<sub>2</sub> Data Requirements Rule purposes. The air program examined design values<sup>44</sup> (2015-2023) calculated based on the most recent, complete, three consecutive years of quality-assured, certified data in EPA's Air Quality System.<sup>45</sup> The air program also reviewed available monitored annual 99<sup>th</sup> percentile of 1-hour daily maximum SO<sub>2</sub>

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<sup>44</sup> A design value is a statistic that describes the air quality status of a given location relative to the level of the standard. For each day of the year maximum hourly SO<sub>2</sub> concentrations from monitors are determined, and for each year the 99<sup>th</sup> percentile of the maximum hourly concentrations are calculated. A design value is the average of three consecutive years of 99<sup>th</sup> percentile values.

<sup>45</sup> <https://www.epa.gov/air-trends/air-quality-design-values>.

concentration data (2019-2023).<sup>46</sup> The air program considered all available monitoring information.

The air program reviewed modeling data including Round 2, Round 3, ongoing Data Requirements Rule reports, current Prevention of Significant Deterioration (PSD)<sup>47</sup> permitting, Clean Data Determinations, and redesignation requests. For all modeling, the air program examined the maximum SO<sub>2</sub> concentration and where it was located, if actual or allowable emissions were used and the emission years, the domain, the extension of modeling into another state, the background concentrations, and the sources included in the model. The air program considered all available modeling information from 2014 through 2024 in the analysis.

The air program gathered wind rose data for each Missouri and affected border-state facility. In most cases, the air program used eight years of data to create the wind roses. The air program reviewed the average hourly wind speeds and predominant wind directions to determine if SO<sub>2</sub> emissions from Missouri facilities would affect border-state areas where there was a strong likelihood of elevated SO<sub>2</sub> concentrations. The air program also reviewed wind roses for affected border-state facilities to determine if SO<sub>2</sub> emissions from these facilities were contributing to areas along the border that could interact with Missouri SO<sub>2</sub> emissions causing elevated SO<sub>2</sub> concentrations.

Finally, the air program evaluated current emissions from Missouri and border-state facilities to determine what type of facilities would have a greater likelihood of their SO<sub>2</sub> emissions interacting with other large SO<sub>2</sub> emission sources to potentially create areas of elevated SO<sub>2</sub> concentrations. Additionally, the air program compared current SO<sub>2</sub> emissions to modeled SO<sub>2</sub> emissions to evaluate any anticipated impacts from any facilities have increased emissions above the amounts modeled. The air program also compared current emissions to distance between facilities to determine the likelihood of areas with elevated SO<sub>2</sub> concentrations. The air program formed conclusions based on monitoring values, site-specific factors detailed in modeling, predominant wind patterns from meteorological data, current emissions, and distances between facilities. Based on the evidence to support prong 1, Missouri is not significantly contributing to nonattainment in any downwind state.

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<sup>46</sup> <https://www.epa.gov/outdoor-air-quality-data/monitor-values-report>.

<sup>47</sup> EPA defines Prevention of Significant Deterioration permitting as an evaluation that applies to new major sources or major modifications at existing sources for pollutants where the area the source is located is in attainment or unclassifiable with the NAAQS. Section 302(j) of the CAA defines major stationary source as any stationary facility or source of air pollutants which directly emits, or has the potential to emit, 100 tons per year or more of any air pollutant.

### 3.3 *Prong 2 Analysis*

State plans are required to contain provisions that prohibit any facility or other type of emissions activity in one state interfering with maintenance of the standard in another state (prong 2). In this plan, the air program performed a weight of evidence analysis to demonstrate compliance with prong 2 requirements. The air program analyzed ambient air quality monitors to determine if Missouri or border-states had any areas with elevated SO<sub>2</sub> design values. The air program reviewed Missouri facility permit requirements and consent documents that limit facility SO<sub>2</sub> emissions. Lastly, the air program evaluated regional, statewide and specific facility SO<sub>2</sub> emission trends for Missouri and its border-states.

Similar to the prong 1 analysis, the air program evaluated monitoring data in the prong 2 analysis to determine if there were any monitoring sites with elevated SO<sub>2</sub> concentrations. The air program examined design values certified in EPA's Air Quality System for years 2015 through 2023 and available monitored annual 99<sup>th</sup> percentile of 1-hour daily maximum SO<sub>2</sub> concentration for years 2019 through 2023. The air program considered all available monitoring information.

The air program reviewed Missouri facility permits and consent documents to identify federally enforceable requirements limiting SO<sub>2</sub> emissions, including SO<sub>2</sub> control equipment, SO<sub>2</sub> Data Requirements Rule limits, federal rules, and state rules. EPA publishes the complete list of air program rules approved and incorporated by reference into Missouri's existing plan in the Code of Federal Regulations at 40 CFR 52.1320(c).<sup>48</sup> The complete list of air program rules appears in the Code of State Regulations, available online at the Missouri Secretary of State website.<sup>49</sup> The source-specific permits and consent documents included in Missouri's plan are listed in 40 CFR 52.1320(d). The non-regulatory or quasi-regulatory components of Missouri's existing plan, including most infrastructure plans and the technical demonstrations associated with a maintenance plan or attainment demonstration, are listed in 40 CFR 52.1320(e). These components are considered together and are part of Missouri's existing plan, which is designed to maintain compliance with all of the CAA requirements concerning all NAAQS. Some federal and state programs that have helped reduce SO<sub>2</sub> emissions include the Mercury and Air Toxics Standards (MATS) rule,<sup>50</sup> the 2007 Heavy-Duty Highway Rule,<sup>51</sup> the Acid Rain Program,<sup>52</sup> the Cross-State Air Pollution Rule,<sup>53</sup> the National Emission Standards for Hazardous Air Pollutants,<sup>54</sup> the New Source Performance Standards,<sup>55</sup> the Nonroad Diesel Rule,<sup>56</sup> the Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements,<sup>57</sup>

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<sup>48</sup> <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-52/subpart-AA/section-52.1320>.

<sup>49</sup> <https://www.sos.mo.gov/> (Administrative Rules; Code of State Regulations; Title 10; Division 10).

<sup>50</sup> <https://www.epa.gov/stationary-sources-air-pollution/mercury-and-air-toxics-standards>.

<sup>51</sup> <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-control-air-pollution-new-motor-vehicles>.

<sup>52</sup> <https://www.epa.gov/acidrain/acid-rain-program>.

<sup>53</sup> <https://www.epa.gov/Cross-State-Air-Pollution/overview-cross-state-air-pollution-rule-csapr>.

<sup>54</sup> <https://www.epa.gov/stationary-sources-air-pollution/national-emission-standards-hazardous-air-pollutants-neshap-8>.

<sup>55</sup> <https://www.epa.gov/stationary-sources-air-pollution/new-source-performance-standards>.

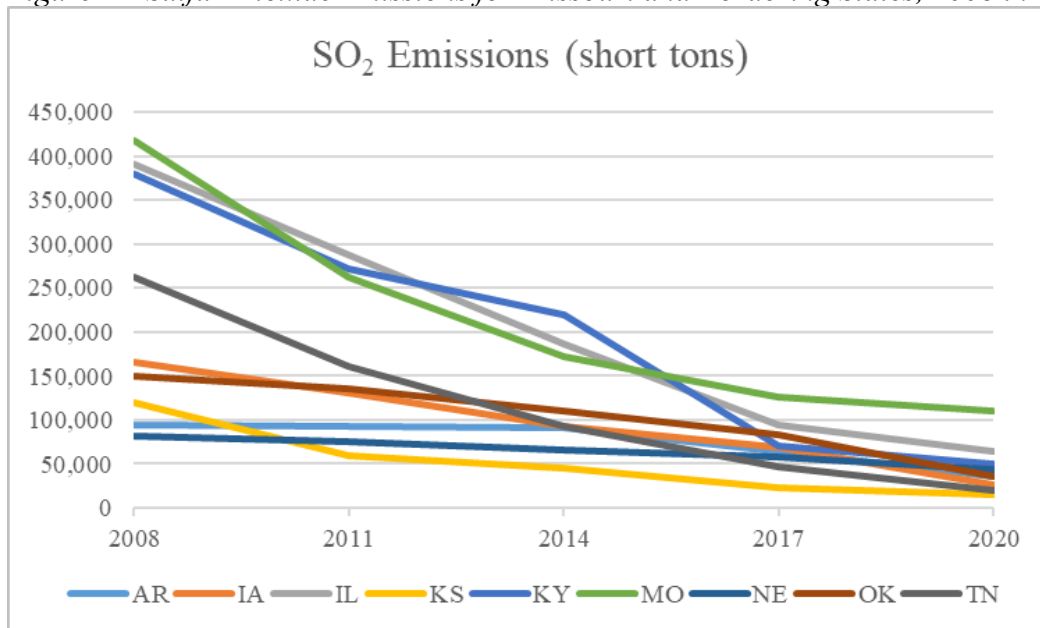
<sup>56</sup> <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-control-emissions-air-pollution-nonroad>.

<sup>57</sup> <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-and-related-materials-control-air-pollution>.

and the Tier 2 and 3 Mobile Source Rules.<sup>58</sup> Collectively, approved state rules, consent documents, and federal programs have resulted in a steady decline of SO<sub>2</sub> emissions nationwide over several years.<sup>59</sup>

The air program also analyzed state and regional emission trends. The downward trend in SO<sub>2</sub> emissions across the U.S. is similar to that in Missouri and each of its bordering states, as shown in Figure 1. The air program evaluated emission trends for Missouri facilities located close to the border and border-state facilities that are within close range of a Missouri facility. The SO<sub>2</sub> emissions from these facilities have the greatest probability to interact with each other, potentially resulting in areas with elevated SO<sub>2</sub> concentrations. The trend for most facilities showed decreasing SO<sub>2</sub> emissions. The air program formed conclusions based on monitoring values, site-specific factors found in permits and consent documents, and emission trends. Based on the evidence to support prong 2, Missouri is not interfering with maintenance of the 2010 SO<sub>2</sub> standard in any border state.

*Figure 1—Sulfur Dioxide Emissions for Missouri and Bordering States, 2008 through 2020*



Data retrieved from <https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data>, National and State EIS Sector CAPS Trends, updated April 2023.

### 3.4 Prioritizing Emission Source Categories for Evaluation

For the interstate transport analysis included in this plan, the first step is to evaluate the type of emission sources most likely to have the potential to impact attainment or maintenance in a downwind state. In general, anthropogenic emission sources can be divided into five different emission source categories: point sources (permitted facilities), nonpoint sources, onroad

<sup>58</sup> <https://www.epa.gov/mobile-source-pollution/regulations-reduce-mobile-source-pollution>.

<sup>59</sup> <https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data>, Criteria pollutants National Tier 1 for 1970-2023.

sources, nonroad sources, and event sources (fires). The National Emissions Inventory (NEI) is an EPA report that provides a detailed estimate of air pollutant emissions, including SO<sub>2</sub>, for all emission source categories. The NEI is released every three years. Although 2020 is the most recent year in which triennial NEI data is available, it may not be representative due to the global pandemic severely impacting emission activity. Therefore, the air program used 2017 NEI data to determine which emission source categories would have the largest potential to impact downwind states.

As shown in Table 1, a majority of Missouri's SO<sub>2</sub> emissions are from point sources. Point sources include facilities, such as industrial or commercial factories. According to the 2017 NEI, facilities accounted for about 91 percent of the total SO<sub>2</sub> emissions in Missouri. The SO<sub>2</sub> emissions from other categories listed in the table are more dispersed and, therefore, are less likely to cause elevated SO<sub>2</sub> concentrations in other states. Based on this information, the air program determined it was appropriate to focus the evaluation for this interstate transport plan on point sources (permitted facilities).

*Table 1—2017 National Emissions Inventory Summary of Missouri Sulfur Dioxide Emissions by Source Category*

<b>Emission Source Category</b>	<b>SO<sub>2</sub> Emissions * (tons per year)</b>	<b>Percent of Total SO<sub>2</sub> Emissions in Missouri</b>
Point	116,556	90.66
Nonpoint	1,911	1.49
Event	9,465	7.36
Onroad	572	0.44
Nonroad	56	0.04
<b>SO<sub>2</sub> Total Emissions</b>	<b>128,560</b>	<b>100.00</b>

\* Data retrieved from <https://www.epa.gov/air-emissions-inventories/emissions-inventory-system-eis-gateway>.

Table 2 provides a further breakdown of Missouri point source SO<sub>2</sub> emissions from the 2017 NEI based on the type of facility/activity.

*Table 2—2017 National Emissions Inventory Summary of Missouri Sulfur Dioxide Emissions by Source Type*

<b>Emission Source Type</b>	<b>SO<sub>2</sub> Emissions * (tons per year)</b>
Fuel Combustion Electric Utilities	106,407.39

<b>Emission Source Type</b>	<b>SO<sub>2</sub> Emissions * (tons per year)</b>
Miscellaneous	8,982.97
Other Industrial Processes	5,183.33
Fuel Combustion Industrial	2,786.06
Metals Processing	2,766.98
Waste Disposal and Recycling	604.82
Highway Vehicles	571.97
Miscellaneous	539.59
Fuel Combustion Other	439.51
Off Highway	271.07
Storage and Transport	6.03
Solvent Utilization	0.45
Petroleum and Related Industries	0.04
<b>SO<sub>2</sub> Emissions Total</b>	<b>128,560</b>

\* Data retrieved from <https://www.epa.gov/air-emissions-inventories/emissions-inventory-system-eis-gateway>.

### 3.5 *Selection Criteria for Missouri Facilities for the Interstate Transport Analysis*

The air program's second step in the interstate transport analysis is to establish selection criteria to determine which Missouri facilities to evaluate that may potentially impact the attainment or maintenance of the 2010 SO<sub>2</sub> standard in downwind states. The air program's first selection criteria was based on the facility's proximity to Missouri's border. The air program screened out any facilities located more than 50 km from Missouri's border from further evaluation. Fifty kilometers was chosen because an EPA memorandum,<sup>60</sup> which applies to nitrogen dioxide and SO<sub>2</sub>, suggests that including all facilities within 50 km of the potentially impacted facility is a conservative approach to determining SO<sub>2</sub> impacts from a contributing source. Additionally, air

<sup>60</sup> An EPA memorandum dated March 1, 2011, Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO<sub>2</sub> National Ambient Air Quality Standard.  
[https://www.epa.gov/sites/default/files/2015-07/documents/appwno2\\_2.pdf](https://www.epa.gov/sites/default/files/2015-07/documents/appwno2_2.pdf).

quality modelers utilized the American Meteorological Society/Environmental Protection Agency Regulatory Model, also called AERMOD, extensively to model facilities for the 2010 SO<sub>2</sub> standard. In 2016, the air program used this model in the designations process for the 2010 SO<sub>2</sub> standard. In most cases, modelers used an urban scale to assess air quality within 50 km of the modeled facility.<sup>61</sup> This distance is also consistent with the definition of urban scale used in the Network Design Criteria for Ambient Air Quality Monitoring, found in 40 CFR Part 58, Appendix D, Section 4.4.4(4).<sup>62</sup>

The air program's second selection criteria was to determine which facilities from the first selection criteria emitted greater than 100 tons of SO<sub>2</sub> in any year from 2014 through 2022. Point source emissions from facilities that emit greater than this amount represent more than 99 percent of all point source SO<sub>2</sub> emissions from Missouri sources located within 50 km of the border as shown in Table 3.

*Table 3—Percent Breakdown of SO<sub>2</sub> Emissions from Point Source Missouri Facilities Located Within 50 km of the Border*

<b>All Point Source Missouri Facilities Less than 50 km from Missouri's Border</b>		
<b>Facility SO<sub>2</sub> Emissions Category (tpy)</b>	<b>SO<sub>2</sub> Emissions (2017 tons)</b>	<b>Percent (%) of Total Emissions</b>
> 100	90,799	99.16%
> 75 and ≤ 100	253	0.28%
> 50 and ≤ 75	250	0.27%
> 25 and ≤ 50	53	0.06%
> 10 and ≤ 25	66	0.07%
≤ 10	150	0.16%
Total	91,571	100.00%

Additionally, the air program chose a threshold of 100 tons of SO<sub>2</sub> based on the 2011 draft EPA guidance<sup>63</sup> for state plans for the 2010 SO<sub>2</sub> standard. The air program evaluated facility emissions for 2014 through 2022 to ensure the selection criteria did not inadvertently fail to identify any Missouri facilities that may have had low emissions in some years but more in others. Table 4 lists the Missouri facilities meeting the first two criteria, their distance to the nearest bordering state,<sup>64</sup> and emissions trends. These are the Missouri facilities the air program selected for further evaluation in the interstate transport analysis as shown in Figure 2.

<sup>61</sup> <https://dnr.mo.gov/document-search/modeling-protocol-characterization-air-quality-federal-data-requirements-rule-2010-sulfur-dioxide-standard-september-2016>.

<sup>62</sup> <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-58/appendix-Appendix%20D%20to%20Part%2058>.

<sup>63</sup> [https://www3.epa.gov/airquality/so2implementation/DraftSO2Guidance\\_9-22-11.pdf](https://www3.epa.gov/airquality/so2implementation/DraftSO2Guidance_9-22-11.pdf).

<sup>64</sup> Some facilities listed in Table 4 may be within 50 km of several states, but in most cases the air program only analyzed the nearest state due to the higher likelihood of receiving SO<sub>2</sub> transported from Missouri.

*Table 4—Missouri Facilities Within 50 km of the Border Emitting Greater Than 100 tons per year of Sulfur Dioxide in any year from 2014 through 2022*

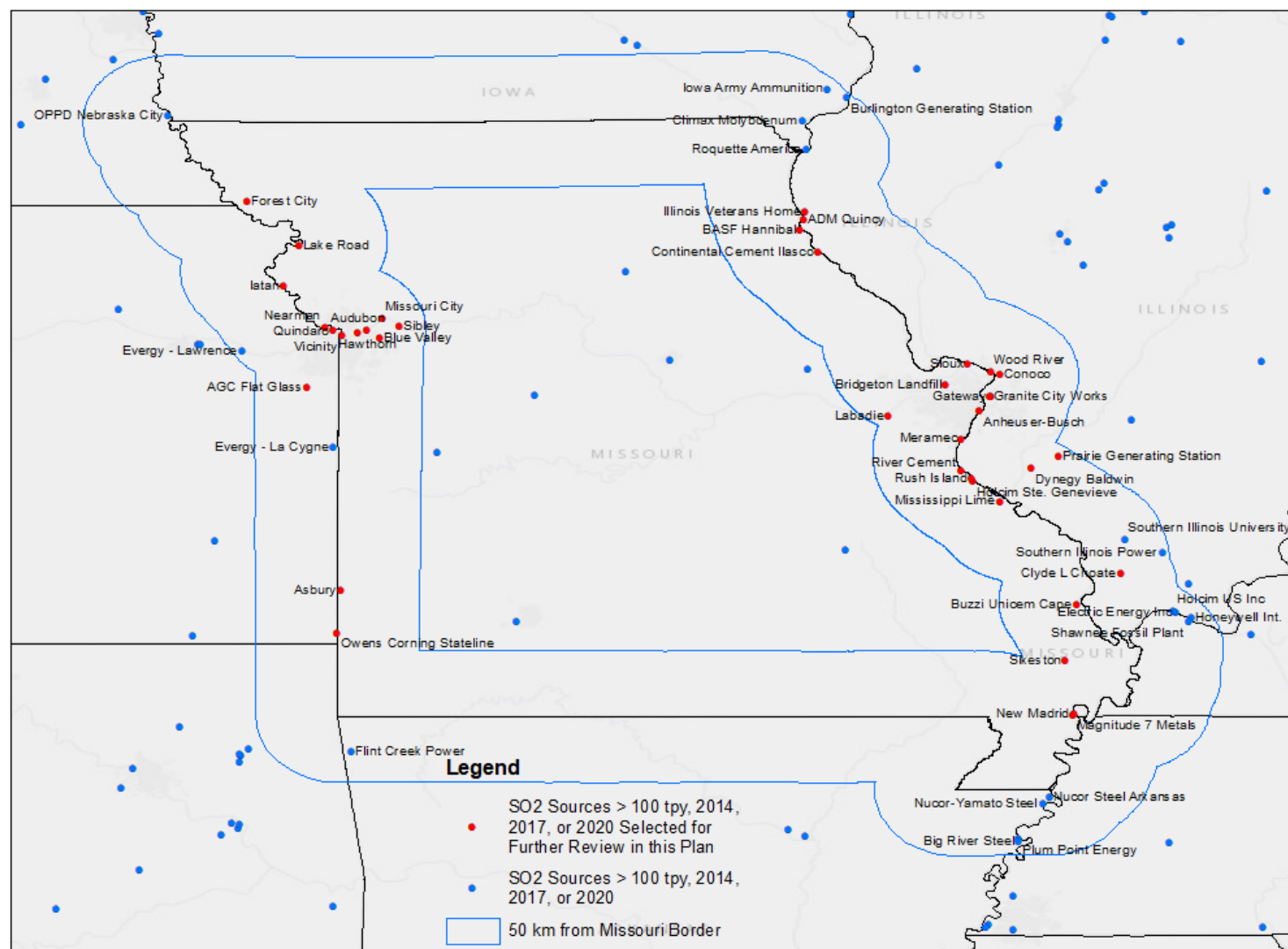
Facility Name	County	Approximate Distance to Border (km)	SO <sub>2</sub> Emissions (tons/year) <sup>a</sup>									Percent Change from 2014
			2014	2015	2016	2017	2018	2019	2020	2021	2022	
Anheuser-Busch Inc.-St. Louis	St. Louis City	1.25 (IL)	2,867	1,623	253	111	162	128	126	118	212	-92.61
Bridgeton Landfill, LLC	St. Louis	14.53 (IL)	31	242	148	96	75	54	43	30	22	-29.03
Holcim US Inc.-Ste. Genevieve Plant	Ste. Genevieve	1.27 (IL)	471	628	579	539	624	624	626	576	401	-14.86
Ameren Missouri Labadie Energy Center	Franklin	40.38 (IL)	33,091	34,421	31,113	33,115	33,705	34,475	39,392	41,927	44,265	33.77
Ameren Missouri Meramec Energy Center	St. Louis	0.72 (IL)	11,702	5,245	4,342	2,896	3,346	1,394	284	1,539	309	-97.36
Mississippi Lime Company-Ste. Genevieve	Ste. Genevieve	3.73 (IL)	3,285	3,082	2,747	1,715	1,535	1,693	1,616	1,458	1,400	-57.38
River Cement Company DBA Buzzi Unicem USA-Selma Plant	Jefferson	0.88 (IL)	533	533	491	527	507	485	464	466	457	-14.26
Ameren Missouri Rush Island Energy Center	Jefferson	0.57 (IL)	17,444	17,487	17,384	22,167	18,484	13,200	17,321	19,528	11,739	-32.70
Ameren Missouri Sioux Energy Center	St. Charles	0.95 (IL)	1,484	3,303	3,180	2,722	2,276	2,121	1,200	1,972	1,676	12.94
Buzzi Unicem USA-Cape Girardeau	Cape Girardeau	2.46 (IL)	557	597	613	558	153	234	192	296	236	-57.63

Facility Name	County	Approximate Distance to Border (km)	SO <sub>2</sub> Emissions (tons/year) <sup>a</sup>									Percent Change from 2014
			2014	2015	2016	2017	2018	2019	2020	2021	2022	
Sikeston Power Station	Scott	28.04 (IL)	6,651	4,789	4,837	4,488	4,261	3,668	4,266	4,799	4,792	-27.95
Magnitude 7 Metals, LLC	New Madrid	0.64 (KY), 2.75 (TN)	5,323	5,153	515	0	1,772	3,706	3,216	3,785	8,265	55.27
AECI-New Madrid Power Plant	New Madrid	2.75 (KY)	16,672	123	12,467	13,548	14,865	13,253	12,036	10,486	13,764	-17.44
BASF Corporation-Hannibal Plant	Marion	0.88 (IL)	2,560	1,340	79	77	88	159	136	155	150	-94.14
Continental Cement Company, LLC-Ilasco Plant	Ralls	0.92 (IL)	784	640	547	675	664	649	565	739	427	-45.54
Audubon Materials, LLC-Sugar Creek Plant	Jackson	14.87 (KS)	117	201	144	153	555	229	411	579	241	105.98
Independence Power and Light-Blue Valley Station	Jackson	24.27 (KS)	2,105	3,120	0	0	0	0	0	0	0	-100.00
Kansas City Power and Light Company-Hawthorn Generating Station	Jackson	9.73 (KS)	1,441	1,368	1,043	1,180	1,089	1,255	929	1,221	1,353	-6.11
Kansas City Power and Light Company Iatan Generating Station	Platte	0.73 (KS)	286	176	250	438	294	446	812	653	386	34.97
Kansas City Power and Light Greater Missouri Operations	Buchanan	0.5 (KS)	1,112	1,051	705	405	349	434	185	256	548	-50.72

Facility Name	County	Approximate Distance to Border (km)	SO <sub>2</sub> Emissions (tons/year) <sup>a</sup>									Percent Change from 2014
			2014	2015	2016	2017	2018	2019	2020	2021	2022	
Company Lake Road Generating Station												
Independence Power and Light Missouri City Station	Clay	25.84 (KS)	0.16	723	0	0	NA	NA	NA	NA	NA	-100.00
Kansas City and Light Greater Missouri Operations Co. Sibley Generating Station	Jackson	34.93 (KS)	4,847	7,630	3,604	4,162	2,616	0	0	0	0	-100.00
Veolia Energy Kansas City Inc Grand Avenue Station (Vicinity)	Jackson	2.4 (KS)	7,782	7,343	25	175	1	1	1	1	<1	-100.00
Empire District Electric Company Asbury Plant	Jasper	2.54 (KS)	6,318	1,134	1,031	909	739	798	NA	NA	NA	-100.00
Owens-Corning Stateline	Jasper	0.31 (KS), 8.17 (OK)	NA	NA	NA	14	143	81	36	36	76	100.00
Exide Technologies Canon Hollow (Forest City	Holt	7.1 (KS), 7.11 (NE)	174	146	142	127	178	159	156	185	160	-8.05

<sup>a</sup> Data retrieved from the Missouri Emissions Inventory System (MoEIS).

Figure 2—Map Showing All Facilities in and Around Missouri That Emitted at Least 100 Tons Per Year Sulfur Dioxide in 2014, 2017, or 2020



### 3.6 *Selection Criteria for Border-State Facilities for the Interstate Transport Analysis*

Next, the air program identified border-state facilities that emitted more than 100 tons per year SO<sub>2</sub> and are located within 50 km of a Missouri facility listed in Table 4. These facilities are located near enough to a Missouri facility where there may be interactions between the SO<sub>2</sub> emissions at the Missouri facility and the SO<sub>2</sub> emissions from the border-state facility that could potentially create an area of elevated SO<sub>2</sub> concentrations due to the way SO<sub>2</sub> behaves in the atmosphere. The air program used reported SO<sub>2</sub> emissions data in any of the NEI years of 2014, 2017, and 2020. The air program used these three years to identify border-state facilities for evaluation because the data was readily available through the NEI. Also, using three years of data spanning seven years reduces the possibility that any border-state facilities are excluded from evaluation due to varying emissions levels in any given year. Table 5 identifies all the border-state facilities meeting this criteria. The table also provides the emission trends for these facilities during the three NEI years evaluated. The trends show decreased emissions over time for all but one facility, consistent with the overall emission trends for bordering states displayed in Figure 1. These are the border-state facilities the air program selected for further evaluation in the interstate transport analysis as shown in Figure 2.

*Table 5—Border-State Facilities Emitting Greater Than 100 tons per year of Sulfur Dioxide in 2014, 2017, or 2020 and located Within 50 km of a Missouri source listed in Table 4.*

State	Facility Name	County	EIS Facility ID	Approximate Distance to Missouri Border (km)	SO <sub>2</sub> Emissions (tons/year) <sup>a</sup>			Percent Change from 2014
					2014 NEI	2017 NEI	2020 NEI	
Illinois	ADM Quincy	Adams	3345211	1.44	838	205	0.46	-99.95 %
Illinois	Clyde L Choate Mental Health Center	Union	4622911	18.18	656	616	614	-6.42 %
Illinois	ConocoPhillips Corp.	Madison	7940411	3.05	1,217	1,495	947	-22.20 %
Illinois	Dynegy Midwest Generation, LLC	Randolph	7954611	27.87	4,406	2,987	1,475	-66.52 %
Illinois	Gateway Energy & Coke Company LLC	Madison	10923611	5.28	1,180	1,470	974	-17.46 %
Illinois	Granite City Works of United States Steel Corp.	Madison	8191211	4.89	1,335	12	375	-71.91 %
Illinois	Illinois Veterans Home	Adams	3342111	2.92	487	601	409	-16.04 %
Illinois	Prairie State Generating Station <sup>b</sup>	Washington	10857911	41.85	5,696	9,359	9,779	+ 71.68 %
Illinois	Wood River	Madison	7791011	1.23	7,122	N/A	N/A	-100.00 %
Kansas	AGC Flat Glass	Johnson	4538011	18.66	154	157	98	-36.36 %
Kansas	Kansas City BPU – Nearman	Wyandotte	4633811	0.78	5,333	904	1,210	-77.31 %
Kansas	Kansas City BPU - Quindaro	Wyandotte	4627911	0.35	3,684	1	0.07	-100.00 %

<sup>a</sup> Data retrieved from <https://www.epa.gov/air-emissions-inventories/emissions-inventory-system-eis-gateway>.

<sup>b</sup> The Data Requirements Rule modeling for the Prairie State Generating Station used actual 2013-2015 SO<sub>2</sub> emissions data representing 4,719.5, 5,696.0, and 7,847.6 tons, respectively. Source: [https://www.epa.gov/sites/default/files/2017-01/documents/illinois\\_epa\\_so2\\_drr\\_modeling\\_tsd\\_final.pdf](https://www.epa.gov/sites/default/files/2017-01/documents/illinois_epa_so2_drr_modeling_tsd_final.pdf).

### 3.7 *Missouri and Border-State Facility Specific Interstate Transport Analysis*

The air program conducted separate evaluations for each Missouri facility listed in Table 4. These 26 evaluations are included as appendices. Each evaluation includes a facility description and emission trends of the Missouri facility. Individual evaluations show a map of the Missouri facility and the potentially affected facilities in bordering states identified in Table 5. Emission trends for the border-state facilities are also given. All evaluations are separated into an instate and outstate analysis of prong 1 and prong 2 requirements. The prong 1 analysis includes a review of SO<sub>2</sub> ambient air monitors, facility SO<sub>2</sub> modeling, wind rose, current emissions, and distances between facilities. The prong 2 analyses includes an examination of monitoring data from prong 1, any permits or consent agreements limiting SO<sub>2</sub> emissions, and facility emission trends. Each evaluation then draws conclusions based on the analysis to ensure Missouri's plan satisfies the CAA Section 110(a)(2)(D)(i)(I) requirements that prohibit any facility or other type of emissions activity in one state from significantly contributing to nonattainment of the standard in another state (prong 1) and from interfering with maintenance of the standard in another state (prong 2).

Based on the facility evaluations in Appendices 1 through 26, the air program demonstrates that all Missouri facilities listed in Table 4 do not significantly contribute to downwind nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard in any downwind state, including potentially affected border-state facilities listed in Table 5. Table 6 summarizes the data and conclusions of the analysis of these Missouri facilities.

Table 6—Summary of Prong 1 and Prong 2 Analysis from Appendices 1 through 26

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
1	Anheuser-Busch Inc.- St. Louis (510-0003)	In-State	N/A	<p>Emissions from Anheuser-Busch Inc.- St. Louis do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>• Jefferson County Clean Data Determination request modeling indicates SO<sub>2</sub> concentrations are less than the standard and the modeling included emissions from Anheuser-Busch.</li> <li>• Monitoring Design Values for SO<sub>2</sub> from 2015 through 2023 are less than the standard.</li> <li>• The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the standard.</li> <li>• Wind Rose indicates the predominant wind direction does not align with SO<sub>2</sub> transport from Anheuser-Busch to Illinois.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>• Anheuser-Busch has limited the boilers to firing only gaseous fuels.</li> <li>• Reductions of SO<sub>2</sub> emissions from Anheuser-Busch accepting an enforceable plantwide SO<sub>2</sub> emissions limit of less than 2,000 tons per year.</li> <li>• Emission trends for Anheuser-Busch show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>
		Out-State	ConocoPhillips Corp.	<u>Prong 1:</u>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
			<p>Gateway Energy &amp; Coke Company, LLC</p> <p>Granite City Works of United States Steel Corp.</p>	<ul style="list-style-type: none"> <li>SO<sub>2</sub> Nonattainment Area Plan for Alton Township, Illinois indicates the SO<sub>2</sub> concentrations for the area are less than the standard, and the modeling included emissions from Conoco.</li> <li>Round 2 modeling conducted for Madison County, Illinois included Conoco and shows that SO<sub>2</sub> concentrations around this facility are less than the 2010 SO<sub>2</sub> standard.</li> <li>Round 3 modeling conducted for Gateway and Granite City Works shows that SO<sub>2</sub> concentrations around these facilities are less than the 2010 SO<sub>2</sub> standard.</li> <li>Monitoring Design Values for SO<sub>2</sub> from 2015 through 2023 are less than the standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the standard.</li> <li>Wind Rose shows predominant wind directions that indicate minimal interaction of SO<sub>2</sub> emissions from Conoco, Gateway, and Granite City Works with Missouri sources along the border.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>Emission trends for Conoco, Gateway, and Granite City Works show decreasing SO<sub>2</sub> emissions from these facilities.</li> </ul>
2	<p>Bridgeton Landfill, LLC</p> <p>(189-0312)</p>	In-State	N/A	<p>Emissions from Bridgeton Landfill, LLC do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1</u></p> <ul style="list-style-type: none"> <li>Monitoring Design Values for SO<sub>2</sub> from 2015 through 2023 are less than the standard.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<ul style="list-style-type: none"> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the standard.</li> <li>Wind Rose from the Lambert airport indicates the predominant wind direction does not align with SO<sub>2</sub> transport from Bridgeton Landfill to Illinois.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>Operating Permit OP2019-019, limits the Bridgeton Landfill to less than 100 tons per year SO<sub>2</sub>.</li> <li>Emission trends for Bridgeton Landfill show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>
		Out-State	<p>ConocoPhillips Corp.</p> <p>Gateway Energy &amp; Coke Company, LLC</p> <p>Granite City Works of United States Steel Corp.</p>	<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>The modeling conducted for the SO<sub>2</sub> Nonattainment Area Plan for Alton Township, Illinois, indicates the SO<sub>2</sub> concentrations for the area are less than the standard, and the modeling included Conoco.</li> <li>The Round 3 modeling conducted for Gateway and Granite City Works shows that SO<sub>2</sub> concentrations around these facilities are less than the 2010 SO<sub>2</sub> standard.</li> <li>Monitoring Design Values for SO<sub>2</sub> from 2015 through 2023 are less than the standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations form 2019 through 2023 are less than the standard.</li> <li>Wind Rose from Lambert airport shows predominant wind directions that indicate minimal interaction of SO<sub>2</sub> emissions</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<p>from Conoco, Gateway, and Granite City Works with Missouri sources along the border.</p> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>Emission trends for Conoco, Gateway, and Granite City Works show decreasing SO<sub>2</sub> emissions from these facilities.</li> </ul>
3	Holcim US Inc.- Ste. Genevieve Plant (186-0044)	In-State	N/A	<p>Emissions from Holcim US Inc.- Ste. Genevieve Plant do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>The modeling conducted for the Jefferson County, Missouri SO<sub>2</sub> nonattainment area for the Clean Data Determination request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from Holcim Ste. Genevieve.</li> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>Wind Rose from the St. Louis Downtown airport indicates the wind direction does not align with SO<sub>2</sub> transport from Holcim Ste. Genevieve to Illinois.</li> </ul> <p><u>Prong 2:</u></p>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<ul style="list-style-type: none"> <li>The Holcim Ste. Genevieve facility is required to meet a 30-day rolling average SO<sub>2</sub> emission limit.</li> <li>Holcim Ste. Genevieve must operate a dry scrubber for the kiln system and a dry lime scrubbing system when a raw mill is not operating, representing BACT.</li> <li>The Holcim Ste. Genevieve kiln must meet the hydrogen chloride emission standard found in 40 CFR Part 63 Subpart LLL which also reduces SO<sub>2</sub> emissions.</li> <li>Emission trends for Holcim Ste. Genevieve show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>
		Out-State	Dynegy Midwest Generation, LLC	<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>The Round 3 modeling conducted for Dynegy Baldwin shows that SO<sub>2</sub> concentrations around this facility are less than the 2010 SO<sub>2</sub> standard.</li> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>Wind Rose from Lambert airport shows predominant wind directions that indicate minimal interaction of SO<sub>2</sub> emissions from Dynegy Baldwin with Missouri sources along the border.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>SO<sub>2</sub> emission rate reductions from the Illinois Multi-Pollutant Standards Rule.</li> <li>Emission trends for Holcim Ste. Genevieve and Dynegy Baldwin show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
4	Ameren Missouri Labadie Energy Center  (071-0003)	In-State	N/A	<p>Emissions from Ameren Missouri Labadie Energy Center do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>• Labadie source-oriented ambient air monitor design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• The modeling conducted for the Jefferson County, Missouri SO<sub>2</sub> nonattainment area for the Clean Data Determination request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from Labadie.</li> <li>• The modeling conducted for the Jefferson County, Missouri SO<sub>2</sub> nonattainment area for the redesignation request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from Labadie.</li> <li>• Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• Wind Rose from the St. Louis Downtown airport indicates the predominant wind direction does not align with SO<sub>2</sub> transport from Labadie to Illinois.</li> </ul> <p><u>Prong 2:</u></p>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<ul style="list-style-type: none"> <li>The Consent Agreement (APCP-2015-034), approved as part of the Jefferson County, Missouri, SO<sub>2</sub> Redesignation and Maintenance Plan, limits SO<sub>2</sub> emissions from Labadie.</li> <li>Labadie boilers 1 through 4 are subject to major trading programs such as the Acid Rain Program, the Clean Air Interstate Rule, the Cross-State Air Pollution Rule, and the Mercury and Air Toxics Standards (MATS) rule.</li> </ul>
		Out-State	None	<u>Prong 1:</u> N/A <u>Prong 2:</u> N/A
5	Ameren Missouri Meramec Energy Center (189-0010)	In-State	N/A	<p>Emissions from Ameren Missouri Meramec Energy Center do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>The modeling conducted for the Jefferson County, Missouri SO<sub>2</sub> nonattainment area for the Clean Data Determination request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from Meramec.</li> <li>The modeling conducted for the Jefferson County, Missouri SO<sub>2</sub> nonattainment area for the redesignation request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from Meramec.</li> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<ul style="list-style-type: none"> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>Wind Rose from the St. Louis Downtown airport indicates the predominant wind direction does not align with SO<sub>2</sub> transport from Meramec to Illinois.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>SO<sub>2</sub> emission limits included in the Ameren Missouri Meramec Energy Center Consent Agreement (APCP-2015-034).</li> <li>Meramec boilers 1 through 4 and the combustion turbines were or are currently subject to major trading programs such as the Acid Rain Program, the Clean Air Interstate Rule, the Cross-State Air Pollution Rule, and the Mercury and Air Toxics Standards (MATS) rule.</li> <li>Emission trends for Meramec show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>
		Out-State	<p>Dynegy Midwest Generation, LLC</p> <p>Gateway Energy &amp; Coke Company, LLC</p>	<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>The Round 3 modeling conducted separately for Dynegy Baldwin, and Gateway and Granite City Works shows that SO<sub>2</sub> concentrations around these facilities are less than the 2010 SO<sub>2</sub> standard.</li> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
			Granite City Works of United States Steel Corp.	<ul style="list-style-type: none"> <li>Wind Rose from Lambert airport shows predominant wind directions that indicate minimal interaction of SO<sub>2</sub> emissions from Dynegy, Gateway, and Granite City Works with Missouri sources along the border.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>SO<sub>2</sub> emission rate reductions from the Illinois Multi-Pollutant Rule.</li> <li>Emission trends for Gateway, Dynegy Baldwin, and Granite City Works show decreasing SO<sub>2</sub> emissions from these facilities.</li> </ul>
6	Mississippi Lime Company- Ste. Genevieve (189-0001)	In-State	N/A	<p>Emissions from Mississippi Lime Company- Ste. Genevieve do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>Wind Rose from the St. Louis Downtown airport indicates the predominant wind direction does not align with SO<sub>2</sub> transport from Mississippi Lime to Illinois.</li> </ul> <p><u>Prong 2:</u></p>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<ul style="list-style-type: none"> <li>• Reductions of SO<sub>2</sub> emissions from Mississippi Lime accepting an enforceable plantwide SO<sub>2</sub> emissions limit of less than 2,000 tons per year to comply with the Data Requirements Rule.</li> <li>• Emission trends for Mississippi Lime show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>
		Out-State	Dynegy Midwest Generation, LLC  Prairie State Generating Station	<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>• The Round 3 modeling conducted for Dynegy Baldwin and Prairie State Generating Station shows that SO<sub>2</sub> concentrations are less than the 2010 SO<sub>2</sub> standard.</li> <li>• Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• Wind Rose from Lambert airport shows predominant wind directions that indicate minimal interaction of SO<sub>2</sub> emissions from Dynegy and Prairie State Generating Station with Missouri sources along the border.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>• SO<sub>2</sub> emission rate reductions from the Illinois Multi-Pollutant Standards Rule.</li> <li>• Emission trends for Dynegy Baldwin show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>
7	River Cement Company DBA Buzzi	In-State	N/A	Emissions from River Cement Company DBA Buzzi Unicem USA-Selma Plant do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO <sub>2</sub> standard based on the following:

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
	Unicem USA- Selma Plant  (099-0002)			<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>• The modeling conducted for the Jefferson County, Missouri SO<sub>2</sub> nonattainment area for the Clean Data Determination request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from River Cement.</li> <li>• The modeling conducted for the Jefferson County, Missouri SO<sub>2</sub> nonattainment area for the redesignation request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from River Cement.</li> <li>• Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• Wind Rose from the St. Louis Downtown airport indicates the predominant wind direction does not align with SO<sub>2</sub> transport from River Cement to Illinois.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>• The River Cement preheater/precalciner kiln at the facility is subject to the hydrogen chloride emission standard found in 40 CFR Part 63 Subpart LLL which also reduces SO<sub>2</sub>.</li> <li>• The River Cement kiln is subject to the SO<sub>2</sub> limit in 40 CFR Part 60 Subpart F.</li> <li>• Emission trends for River Cement show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
		Out-State	Dynegy Midwest Generation, LLC	<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>• The Round 3 modeling conducted for Dynegy Baldwin shows that SO<sub>2</sub> concentrations in the modeling area are less than the 2010 SO<sub>2</sub> standard.</li> <li>• Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• Wind Rose from Lambert airport shows predominant wind directions that indicate minimal interaction of SO<sub>2</sub> emissions from Dynegy with Missouri sources along the border.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>• SO<sub>2</sub> emission rate reductions from the Illinois Multi-Pollutant Standards Rule.</li> <li>• Emission trends for Dynegy Baldwin show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>
8	Ameren Missouri Rush Island Energy Center  (099-0016)	In-State	N/A	<p>Emissions from Ameren Missouri Rush Island Energy Center do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>• Rush Island source-oriented ambient air monitor design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<ul style="list-style-type: none"> <li>• The modeling conducted for the Jefferson County, Missouri SO<sub>2</sub> nonattainment area for the Clean Data Determination request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from Rush Island.</li> <li>• The modeling conducted for the Jefferson County, Missouri SO<sub>2</sub> nonattainment area for the redesignation request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from Rush Island.</li> <li>• Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• Wind Rose from the St. Louis Downtown airport indicates the predominant wind direction does not align with SO<sub>2</sub> transport from Rush Island to Illinois.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>• The Consent Agreement (APCP-2015-034), approved as part of the Jefferson County, Missouri, SO<sub>2</sub> Redesignation and Maintenance Plan, limit SO<sub>2</sub> emissions from Rush Island.</li> <li>• Rush Island's coal-fired units are subject to major trading programs such as the Acid Rain Program, the Clean Air Interstate Rule, the Cross-State Air Pollution Rule, and the Mercury and Air Toxics Standards rule (MATS).</li> <li>• Emission trends for Rush Island show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
		Out-State	Dynegy Midwest Generation, LLC	<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>The Round 3 modeling conducted for Dynegy Baldwin shows that SO<sub>2</sub> concentrations in the modeling area are less than the 2010 SO<sub>2</sub> standard.</li> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>Wind Rose from Lambert airport shows predominant wind directions that indicate minimal interaction of SO<sub>2</sub> emissions from Dynegy with Missouri sources along the border.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>SO<sub>2</sub> emission rate reductions from the Illinois Multi-Pollutant Standards Rule.</li> <li>Emission trends for Dynegy Baldwin show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>
9	Ameren Missouri Sioux Energy Center  (183-0001)	In-State	N/A	<p>Emissions from Ameren Missouri Sioux Energy Center do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>The modeling conducted for the SO<sub>2</sub> Nonattainment Area Plan for Alton Township, Illinois, indicates the SO<sub>2</sub> concentrations for the area are less than the standard. The modeling included emissions from Sioux and Conoco.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<ul style="list-style-type: none"> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>Wind Rose from the Lambert airport indicates the predominant wind direction does not align with SO<sub>2</sub> transport from Sioux to Illinois.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>Sioux Consent Agreement (APCP-2021-018) contains SO<sub>2</sub> emission limits, which were modeled in the SO<sub>2</sub> Nonattainment Area Plan for Alton Township, Illinois.</li> <li>The two coal-fired units at Sioux are subject to major trading programs such as the Acid Rain Program, the Clean Air Interstate Rule, the Cross-State Air Pollution Rule, and the Mercury and Air Toxics Standards (MATS) rule.</li> <li>The two coal-fired boilers at Sioux are equipped with a wet flue gas desulfurization SO<sub>2</sub> control system.</li> </ul>
		Out-State	ConocoPhillips Corp.  Gateway Energy & Coke Company, LLC	<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>The Round 2 modeling conducted for Madison County, Illinois included Conoco and shows that SO<sub>2</sub> concentrations around this facility are less than the 2010 SO<sub>2</sub> standard. The modeling does not include Sioux because the facility does not significantly contribute to SO<sub>2</sub> concentrations around the Conoco area.</li> <li>The Round 3 modeling conducted for Gateway and Granite City Works shows that SO<sub>2</sub> concentrations around these facilities are less than the 2010 SO<sub>2</sub> standard. The modeling does not include</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
			Granite City Works of United States Steel Corp.	<p>Sioux because the facility does not significantly contribute to SO<sub>2</sub> concentrations around the Gateway and Granite City Works areas.</p> <ul style="list-style-type: none"> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>Wind Rose from Lambert airport shows predominant wind directions that indicate minimal interaction of SO<sub>2</sub> emissions from Conoco, Gateway, and Granite City Works with Missouri sources along the border.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>Emission trends for Conoco, Gateway, and Granite City Works show decreasing SO<sub>2</sub> emissions from these facilities.</li> </ul>
10	Buzzi Unicem USA- Cape Girardeau  (031-0021)	In-State	N/A	<p>Emissions from Buzzi Unicem USA- Cape Girardeau do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>The Round 2 and Round 3 modeling for Sikeston in Scott County indicate SO<sub>2</sub> concentrations are less than the 2010 SO<sub>2</sub> standard. Both of these analyses included emissions from Buzzi Unicem Cape.</li> <li>Data Requirements Rule modeling conducted in 2021 to remove Sikeston Power Station from the ongoing reporting</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<p>requirements, which included emissions from Buzzi Unicem Cape, showed all receptors in the modeling analysis below 50 percent of the level of the standard.</p> <ul style="list-style-type: none"> <li>• Wind Rose from the Cape Girardeau Airport indicates the predominant wind direction does not align with SO<sub>2</sub> transport from Buzzi Unicem Cape to Illinois.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>• SO<sub>2</sub> emission reductions from the Buzzi Unicem Cape Consent Agreement (Civil No. 16-206).</li> <li>• Emission trends for Buzzi Unicem Cape show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>
		Out-State	Clyde L. Choate Mental Health Center	<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>• Wind Rose from Cape Girardeau Airport shows predominant wind directions that indicates minimal interaction of SO<sub>2</sub> emissions from Clyde L Choate with Missouri sources along the border.</li> </ul> <p><u>Prong 2:</u> N/A</p>
11	Sikeston Power Station  (201-0017)	In-State	N/A	<p>Emissions from Sikeston Power Station do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>• The Round 2 and Round 3 modeling for Sikeston in Scott County indicate SO<sub>2</sub> concentrations are less than the 2010 SO<sub>2</sub> standard. Both of these analyses included emissions from</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<p>Sikeston. Therefore, these emissions will not affect border-states.</p> <ul style="list-style-type: none"> <li>Data Requirements Rule modeling conducted in 2021 to remove Sikeston Power Station from the ongoing reporting requirements showed all receptors in the modeling analysis below 50 percent of the level of the standard.</li> <li>Wind Rose from the Cape Girardeau airport indicates that prevalent winds from Sikeston reach Illinois at a distance far enough away to provide good dispersion.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>Sikeston's coal-fired boiler is subject to major trading programs such as the Acid Rain Program, the Clean Air Interstate Rule, the Cross-State Air Pollution Rule, and the Mercury and Air Toxics Standards (MATS) rule.</li> </ul>
		Out-State	None	<p><u>Prong 1:</u> N/A</p> <p><u>Prong 2:</u> N/A</p>
12	Magnitude 7 Metals, LLC (143-0008)	In-State	N/A	<p>Emissions from Magnitude 7 Metals, LLC do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>New Madrid County Nonattainment Area Plan modeling results show SO<sub>2</sub> concentrations will be in compliance with the standard in Missouri, Kentucky, and Tennessee based on the conditions of the Consent Agreements.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<ul style="list-style-type: none"> <li>The nonattainment plan prohibited emissions from the carbon bake unless re-routed to a new stack, and the facility curtailed all operations in January 2024. Since then, all hourly SO<sub>2</sub> concentrations for the monitors surrounding the facility have been less than the 2010 SO<sub>2</sub> standard.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>The nonattainment plan included enforceable emission limits, which were modeled in the attainment demonstration for the nonattainment SIP, and the model demonstrated compliance in Missouri, Kentucky, and Tennessee based on potential emissions.</li> </ul>
		Out-State	None	<p><u>Prong 1:</u> N/A</p> <p><u>Prong 2:</u> N/A</p>
13	AECI-New Madrid Power Plant (143-0004)	In-State	N/A	<p>Emissions from AECI-New Madrid Power Plant do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>New Madrid County Nonattainment Area Plan modeling results show SO<sub>2</sub> concentrations will be in compliance with the standard in Missouri, Kentucky, and Tennessee based on the conditions of the Consent Agreements.</li> <li>2024 year-to-date hourly design values from the Data Requirements Rule monitors in New Madrid County are less than the 2010 SO<sub>2</sub> standard.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<u>Prong 2:</u> <ul style="list-style-type: none"> <li>The nonattainment plan included enforceable emission limits, which were modeled in the attainment demonstration for the nonattainment SIP, and the model demonstrated compliance in Missouri, Kentucky, and Tennessee based on potential emissions.</li> <li>New Madrid Power Plant's two coal-fired boilers are subject to major trading programs such as the Acid Rain Program, the Clean Air Interstate Rule, the Cross-State Air Pollution Rule, and the Mercury and Air Toxics Standards (MATS) rule.</li> <li>There are no interactive outstate sources</li> </ul>
		Out-State	None	<u>Prong 1:</u> N/A <u>Prong 2:</u> N/A
14	BASF Corporation-Hannibal Plant  (127-0001)	In-State	N/A	Emissions from BASF Corporation- Hannibal Plant do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO <sub>2</sub> standard based on the following:  <u>Prong 1:</u> <ul style="list-style-type: none"> <li>Results of SO<sub>2</sub> modeling conducted by the air program show the Hannibal area is in compliance with the 2010 SO<sub>2</sub> standard. The modeling included BASF Hannibal.</li> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<u>Prong 2:</u> <ul style="list-style-type: none"> <li>• Reductions of SO<sub>2</sub> emissions from BASF Hannibal accepting an enforceable plantwide SO<sub>2</sub> emissions limit of less than 2,000 tons per year to comply with the Data Requirements Rule.</li> <li>• SO<sub>2</sub> emission reductions due to BASF Hannibal removing two coal-fired boilers and replacing them with new natural gas boilers.</li> </ul>
		Out-State	ADM Quincy  Illinois Veterans Home	<u>Prong 1:</u> <ul style="list-style-type: none"> <li>• Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• Wind Rose from the Quincy Regional Airport shows predominant wind directions that cause minimal interaction of SO<sub>2</sub> emissions from ADM Quincy and the Illinois Veterans Home with Missouri sources along the border.</li> </ul> <u>Prong 2:</u> <ul style="list-style-type: none"> <li>• SO<sub>2</sub> emission reductions at ADM Quincy from the replacement of two coal-fired boilers with natural gas-fired boilers.</li> <li>• Emission trends for BASF Hannibal and ADM Quincy show decreasing SO<sub>2</sub> emissions from these facilities.</li> </ul>
15	Continental Cement Company,	In-State	N/A	Emissions from Continental Cement Company, LLC- Ilasco Plant do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO <sub>2</sub> standard based on the following:

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
	LLC- Ilasco Plant (173-0001)			<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>Results of SO<sub>2</sub> modeling conducted by the air program show the Hannibal area is in compliance with the standard. The modeling included Continental Cement Ilasco.</li> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>Continental Cement Ilasco must meet an SO<sub>2</sub> BACT limit at the kiln system.</li> <li>Emission trends for Continental Cement Ilasco show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>
		Out-State	ADM Quincy  Illinois Veterans Home	<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>SO<sub>2</sub> emission reductions at ADM Quincy from the replacement of two coal-fired boilers with natural gas-fired boilers.</li> <li>Emission trends for ADM Quincy show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
16	Audubon Materials, LLC-Sugar Creek Plant  (095-0030)	In-State	N/A	<p>Emissions from Audubon Materials, LLC-Sugar Creek Plant do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>• The modeling conducted for the Jackson County, Missouri SO<sub>2</sub> nonattainment area for the Clean Data Determination request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from Audubon.</li> <li>• The modeling conducted for the Jackson County, Missouri SO<sub>2</sub> nonattainment area for the redesignation request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from Audubon.</li> <li>• The Data Requirements Rule annual report for 2022 shows SO<sub>2</sub> concentrations are less than the standard around Nearman and the modeling included the Audubon facility.</li> <li>• Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• Wind Rose from the Charles B. Wheeler Downtown Airport indicates the predominant wind direction does not align with SO<sub>2</sub> transport from Audubon to Kansas.</li> </ul> <p><u>Prong 2:</u></p>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<ul style="list-style-type: none"> <li>Audubon must meet an SO<sub>2</sub> emission limit from their raw mill and preheater/precalciner rotary kiln system and this limit represents BACT.</li> </ul>
		Out-State	<p>Kansas City Board of Public Utilities – Nearman Creek Power Station</p> <p>Kansas City Board of Public Utilities – Quindaro Power Station</p>	<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>Round 3 modeling results show SO<sub>2</sub> concentrations are less than the standard around the Nearman facility. The modeling does not include Audubon because the facility does not significantly contribute to SO<sub>2</sub> concentrations around the Nearman area.</li> <li>The Data Requirements Rule annual report for 2022 shows SO<sub>2</sub> concentrations are less than the standard around Nearman and the modeling included the Audubon facility.</li> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>SO<sub>2</sub> emission reductions from Permit O-12542 limiting Quindaro to only combust natural gas.</li> <li>Emission trends for Nearman and Quindaro show decreasing SO<sub>2</sub> emissions from these facilities.</li> </ul>
17	Independence Power and Light-Blue	In-State	N/A	Emissions from Independence Power and Light-Blue Valley Power Plant do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO <sub>2</sub> standard based on the following:

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
	Valley Power Plant  (095-0050)			<u>Prong 1 and Prong 2:</u> <ul style="list-style-type: none"> <li>SO<sub>2</sub> emission reductions from permanent shutdown of Boilers 1, 2, and 3 and the turbine.</li> </ul>
		Out-State	Kansas City Board of Public Utilities – Nearman Creek Power Station  Kansas City Board of Public Utilities – Quindaro Power Station	<u>Prong 1 and Prong 2:</u> Not reviewed due to permanent shutdown of Boilers 1, 2, and 3 and the turbine at Independence Power and Light-Blue Valley Power Plant.
18	Kansas City Power and Light Company-Hawthorn Generating Station  (095-0022)	In-State	N/A	Emissions from Kansas City Power and Light Company- Hawthorn Generating Station do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO <sub>2</sub> standard based on the following:  <u>Prong 1:</u> <ul style="list-style-type: none"> <li>The modeling conducted for the Jackson County, Missouri SO<sub>2</sub> nonattainment area for the Clean Data Determination request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from Hawthorn.</li> <li>The modeling conducted for the Jackson County, Missouri SO<sub>2</sub> nonattainment area for the redesignation request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from Hawthorn.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<ul style="list-style-type: none"> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>Wind Rose from the Charles B. Wheeler Downtown Airport indicates the predominant wind direction does not align with SO<sub>2</sub> transport from Hawthorn to Kansas.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>The Hawthorn coal-fired boiler is subject to an SO<sub>2</sub> BACT limit.</li> <li>The Hawthorn coal-fired boiler is subject to major trading programs such as the Acid Rain Program, the Clean Air Interstate Rule, the Cross-State Air Pollution Rule, and the Mercury and Air Toxics Standards (MATS) rule.</li> <li>Emission trends for Hawthorn show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>
		Out-State	<p>Kansas City Board of Public Utilities – Nearman Creek Power Station</p> <p>Kansas City Board of Public Utilities –</p>	<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>Round 3 modeling results around Nearman show SO<sub>2</sub> concentrations are less than the standard and the modeling included Hawthorn.</li> <li>The Data Requirements Rule annual report for 2022 shows SO<sub>2</sub> concentrations are less than the standard around Nearman and the modeling included the Hawthorn facility.</li> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
			Quindaro Power Station	<ul style="list-style-type: none"> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>SO<sub>2</sub> emission reductions from Permit O-12542 limiting Quindaro to only combust natural gas.</li> <li>Emission trends for Nearman and Quindaro show decreasing SO<sub>2</sub> emissions from these facilities.</li> </ul>
19	Kansas City Power and Light Company Iatan Generating Station (165-0007)	In-State	N/A	<p>Emissions from Kansas City Power and Light Company Iatan Generating Station do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>Wind Rose from the Kansas City International Airport indicates the predominant wind direction does not align with SO<sub>2</sub> transport from Iatan to Kansas.</li> </ul> <p><u>Prong 2:</u></p>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<ul style="list-style-type: none"> <li>The two coal-fired boilers at Iatan are subject to an SO<sub>2</sub> emission limit and use flue gas desulfurization control equipment for compliance.</li> <li>The two coal-fired boilers at Iatan are subject to major trading programs such as the Acid Rain Program, the Clean Air Interstate Rule, the Cross-State Air Pollution Rule, and the Mercury and Air Toxics Standards (MATS) rule.</li> </ul>
		Out-State	<p>Kansas City Board of Public Utilities – Nearman Creek Power Station</p> <p>Kansas City Board of Public Utilities – Quindaro Power Station</p>	<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>The modeling conducted for Wyandotte County, Kansas in the Kansas Department of Health and Environment 2022 annual Data Requirements Rule report indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from Iatan.</li> <li>Round 3 modeling results show SO<sub>2</sub> concentrations are less than the standard around the Nearman facility.</li> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>SO<sub>2</sub> emission reductions from Permit O-12542 limiting Quindaro to only combust natural gas.</li> <li>Emission trends for Nearman and Quindaro show decreasing SO<sub>2</sub> emissions from these facilities.</li> </ul>
20	Kansas City Power and	In-State	N/A	Emissions from Kansas City Power and Light Greater Missouri Operations Company Lake Road Generating Station do not

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
	Light Greater Missouri Operations Company Lake Road Generating Station  (021-0004)			significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO <sub>2</sub> standard based on the following:  <u>Prong 1:</u> <ul style="list-style-type: none"> <li>The coal-fired boilers stack height provides for good dispersion of SO<sub>2</sub> emissions.</li> <li>There is minimal SO<sub>2</sub> interaction with other sources that could cause elevated concentrations because of the amount of emissions from this facility, and lack of interactive sources in Missouri and Kansas.</li> </ul> <u>Prong 2:</u> <ul style="list-style-type: none"> <li>SO<sub>2</sub> emission reductions from Consent Agreement (APCP-2021-118).</li> <li>The coal-fired boilers stack height provides for good dispersion of SO<sub>2</sub> emissions.</li> <li>There is minimal SO<sub>2</sub> interaction with other sources that could cause elevated concentrations because of the amount of emissions from this facility, and lack of interactive sources in Missouri and Kansas.</li> <li>Emission trends for Lake Road show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>
		Out-State	None	<u>Prong 1:</u> N/A  <u>Prong 2:</u> N/A
21	Independence Power and	In-State	N/A	Emissions from Independence Power and Light Missouri City Station do not significantly contribute to nonattainment (prong 1) or interfere

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
	Light Missouri City Station  (047-0096)			with maintenance (prong 2) of the 2010 SO <sub>2</sub> standard based on the following:  <u>Prong 1 and Prong 2:</u> <ul style="list-style-type: none"> <li>SO<sub>2</sub> emission reductions because the facility ceased operations in 2015.</li> </ul>
		Out-State	Kansas City Board of Public Utilities – Nearman Creek Power Station  Kansas City Board of Public Utilities – Quindaro Power Station	<u>Prong 1 and Prong 2:</u> Not reviewed due to the Independence Power and Light Missouri City Station ceasing operations.
22	Kansas City Power and Light Greater Missouri Operations Company Sibley Generating Station	In-State	N/A	Emissions from Kansas City Power and Light Greater Missouri Operations Company Sibley Generating Station do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO <sub>2</sub> standard based on the following:  <u>Prong 1 and Prong 2:</u> <ul style="list-style-type: none"> <li>SO<sub>2</sub> emission reductions from the permanent retirement of the boilers.</li> </ul>
		Out-State	Kansas City Board of Public Utilities –	<u>Prong 1 and Prong 2:</u> Not reviewed due to the Kansas City Power and Light Greater Missouri Operations Company Sibley Generating Station permanent retirement of boilers.

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
	(095-0031)		Nearman Creek Power Station  Kansas City Board of Public Utilities – Quindaro Power Station	
23	Veolia Energy Kansas City Inc Grand Avenue Station (Vicinity) (095-0021)	In-State	N/A	<p>Emissions from Veolia Energy Kansas City Inc Grand Avenue Station (Vicinity) do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard based on the following:</p> <p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>• The modeling conducted for the Jackson County, Missouri SO<sub>2</sub> nonattainment area for the Clean Data Determination request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from Vicinity.</li> <li>• The modeling conducted for the Jackson County, Missouri SO<sub>2</sub> nonattainment area for the redesignation request indicates the SO<sub>2</sub> concentrations are less than the standard, and the modeling included emissions from Vicinity.</li> <li>• Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>• The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
				<ul style="list-style-type: none"> <li>Wind Roses from the Charles B. Wheeler Downtown Airport and the Johnson County Executive Airport indicate the predominant wind direction does not align with SO<sub>2</sub> transport from Vicinity to Kansas.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>SO<sub>2</sub> emission reductions from the Vicinity Consent Agreement (APCP-2021-007).</li> <li>Emission trends for Vicinity show decreasing SO<sub>2</sub> emissions from this facility.</li> </ul>
		Out-State	<p>Kansas City Board of Public Utilities – Nearman Creek Power Station</p> <p>Kansas City Board of Public Utilities – Quindaro Power Station</p> <p>AGC Flat Glass</p>	<p><u>Prong 1:</u></p> <ul style="list-style-type: none"> <li>Round 3 modeling results around Nearman show SO<sub>2</sub> concentrations are less than the standard and the modeling included the Vicinity facility.</li> <li>The Data Requirements Rule annual report for 2022 shows SO<sub>2</sub> concentrations are less than the standard around Nearman.</li> <li>Ambient air monitoring design values for SO<sub>2</sub> concentrations from 2015 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> <li>The 99<sup>th</sup> percentile of the 1-hour daily maximum SO<sub>2</sub> concentrations from 2019 through 2023 are less than the 2010 SO<sub>2</sub> standard.</li> </ul> <p><u>Prong 2:</u></p> <ul style="list-style-type: none"> <li>SO<sub>2</sub> emission reductions from Permit O-12542 limiting Quindaro to only combust natural gas.</li> <li>Emission trends for Nearman, and Quindaro show decreasing SO<sub>2</sub> emissions from these facilities.</li> </ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
24	Empire District Electric Company Asbury Plant (097-0001)	In-State	N/A	Emissions from Empire District Electric Company Asbury Plant do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO <sub>2</sub> standard based on the following:  <u>Prong 1 and Prong 2:</u> <ul style="list-style-type: none"><li>SO<sub>2</sub> emission reductions from permanent retirement of all fuel combustion units in 2020.</li></ul>
		Out-State	None	<u>Prong 1 and Prong 2:</u> Not reviewed due to the Empire District Electric Company Asbury Plant permanent retirement of all fuel combustion units.
25	Owens Corning Stateline (091-0176)	In-State	N/A	Emissions from Owens Corning Stateline do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO <sub>2</sub> standard based on the following:  <u>Prong 1:</u> <ul style="list-style-type: none"><li>SO<sub>2</sub> true-up modeling results show SO<sub>2</sub> concentrations are less than the standard and the modeling included Owens Corning Stateline.</li></ul> <u>Prong 2:</u> <ul style="list-style-type: none"><li>Owens Corning Stateline operates a dry sorbent injection control device that reduces SO<sub>2</sub> emissions to comply with an SO<sub>2</sub> limit.</li><li>There is minimal SO<sub>2</sub> pollutant interaction with other sources that could cause elevated concentrations because of the amount of emissions from this facility, and lack of interactive sources in Missouri, Kansas, and Oklahoma.</li></ul>

Appendix Number	Missouri Facility and FIPS-Plant ID	In-State or Out-State	Potentially Affected Border-State Facilities	Conclusion
		Out-State	None	<u>Prong 1:</u> N/A <u>Prong 2:</u> N/A
26	Exide Technologies Canon Hollow (Forest City)  (087-0001)	In-State	N/A	Emissions from Exide Technologies Canon Hollow (Forest City) do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO <sub>2</sub> standard based on the following:  <u>Prong 1:</u> <ul style="list-style-type: none"> <li>• Wind Rose from the Kansas City International Airport indicates the predominant wind direction does not align with SO<sub>2</sub> transport from Forest City into Kansas.</li> </ul> <u>Prong 2:</u> <ul style="list-style-type: none"> <li>• Reduction of sulfur emissions at Forest City due to a lime scrubber.</li> <li>• SO<sub>2</sub> emissions are released at stack heights that provide for good dispersion.</li> <li>• There is minimal SO<sub>2</sub> emissions interaction with other sources that could cause elevated SO<sub>2</sub> concentrations because of the amount of emissions from this facility, and lack of interactive sources in Kansas.</li> </ul>
		Out-State	None	<u>Prong 1:</u> N/A <u>Prong 2:</u> N/A

## **4. Public Participation**

The air program provides this plan for inclusion in Missouri's plan as a non-regulatory demonstration plan. This plan provides the rationale and reasoning for EPA to approve Missouri's plan as fully addressing all interstate transport obligations for the 2010 SO<sub>2</sub> standard, as specified in the CAA Section 110(a)(2)(D)(i).

In accordance with the CAA Section 110(a)(2), the Missouri Air Conservation Commission (MACC) held a public hearing and comment period before the adoption of this plan and the subsequent submittal to EPA. The air program notified the public and other interested parties of the public hearing and comment period at least 30 days before this plan's public hearing. Specifically –

- The air program posted notice of availability of the proposed plan revision and announcement of the public hearing on the department's website on July 29, 2024.
- The MACC held a public hearing to receive comments for this plan revision on August 29, 2024, at 9:00 am at Burr Oak Woods Conservation Area in Blue Springs, Missouri.
- The air program opened a 38-day public comment period after posting the plan on the department's website on July 29, 2024. The public comment period closed on September 5, 2024, seven days after the public hearing.

## **5. Conclusion**

The air program acknowledges and fulfills its responsibilities related to the CAA Section 110(a)(2)(D)(i)(I) for the 2010 SO<sub>2</sub> standard. Through this plan, the air program demonstrates that Missouri's plan contains provisions necessary to ensure that emissions in the state do not significantly contribute to nonattainment (prong 1) or interfere with maintenance (prong 2) of the 2010 SO<sub>2</sub> standard in all downwind states.

This determination is based on an evaluation of available datasets for every permitted facility located in Missouri within 50 km of the state border that emitted 100 tons per year or more of SO<sub>2</sub> in any year from 2014-2022. The evaluations detailed in the Appendices 1 through 26 of this plan include analysis of emission inventory data, available meteorological data, applicable control requirements, available monitoring data, and available modeling data for the 26 Missouri facilities and all border-state facilities that emitted at least 100 tons per year of SO<sub>2</sub> and located within 50 km of one of these 26 Missouri facilities. All comments and response to comments are found in Appendix 27.

The air program prepared this plan in accordance with the CAA, the Missouri Air Conservation Law, corresponding state and federal regulations, and applicable EPA guidance.